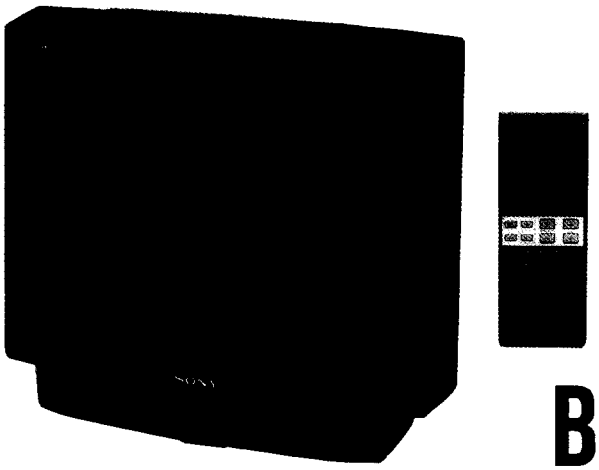
KV-M2140E/M2141E
RM-820

SERVICE MANUAL

Spanish Model

KV-M2140E
Chassis No. SCC-D87F-A
KV-M2141E
Chassis No. SCC-D87E-A



BE-2A CHASSIS

MODELS OF THE SAME SERIES	
KV-M2140E/M2141E	
KV-M1620E/M1621E	
KV-M1420E/M1421E	

SPECIFICATIONS

【KV-M2140E/M2141E】

Television system	B/G/H
Color system	PAL
Channel coverage	VHF : E2-E12 UHF : E21-E69 CABLE TV : S1-S20
Picture tube	Black Trinitron tube 90° degree deflection Approx. 54.5 cm (21 inches) (Approx.51.0cm picture measured diagonally)
Inputs	21-pin connector : CENELEC standard Including RGB input Audio/Video input jacks : phono jacks S-Video input
Outputs	21-pin connector : CENELEC standard Headphones jack : minijack
Sound output	5 W (Music)
Power consumption	70.5Wh (KV-M2140E) 73.5Wh (KV-M2141E)
Dimensions	Approx. 513x475x487 mm (w/h/d)
Weight	Approx. 24.9 kg

【RM-820】

Remote control system	infrared control
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Dimensions	Approx. 67×20×175mm (w/h/d)
Weight	Approx. 100g including batteries
Accessories supplied	IEC designation R6 batters (2)
Supplied accessories	RM-820 Remote Commander (1) IEC designation R6 batteries (2)

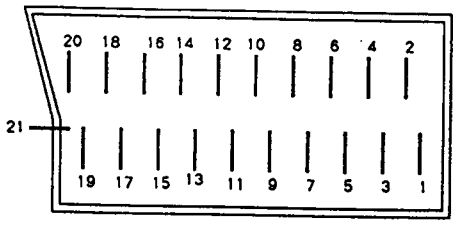
Design and specifications are subject to change without notice.

MICROFILM

TRINITRON® COLOR TV

SONY®

21-pin Euro Connector Configuration



PIN	SIGNAL	SPECIFICATION
1	Audio output	0.5Vrms/1kilohm or less
2	Audio input	0.5Vrms/10kilohms or more
3	Audio output	0.5Vrms/1kilohm or less
4	Earth (audio)	
5	Earth (B-input)	
6	Audio input	0.5Vrms/10kilohms or more
7	B-input	0.7Vp-p/75ohms
8	Function switching	9.5V to 12V
9	Earth (G-input)	
10		
11	G-input	0.7Vp-p/75ohms
12		
13	Earth (R-input)	
14	Earth (blanking)	
15	R-input	0.7Vp-p/75ohms
16	Fast blanking	1V to 3V/75ohms
17	Earth (video)	
18	Earth (fast blanking)	
19	Video output	1Vp-p/75ohms
20	Video input	1Vp-p/75ohms
21	Screening plug	

4 pin connector (S)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync 0.3V ± 3 dB
4	C (S signal) input	0.3V ± 3dB 75ohm positive

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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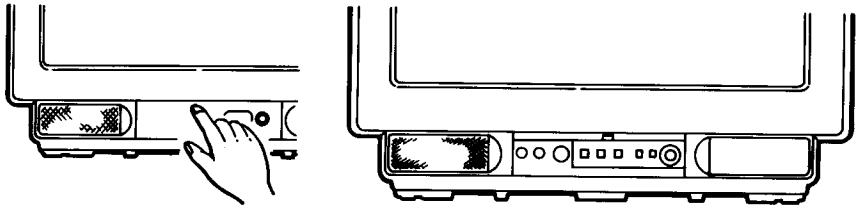
SECTION 1
GENERAL

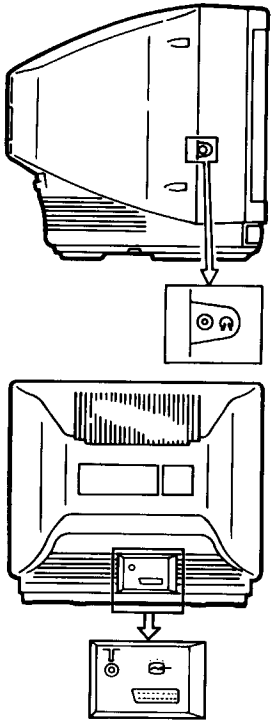
1-1. ADDITIONAL INFORMATION

Parts Identification

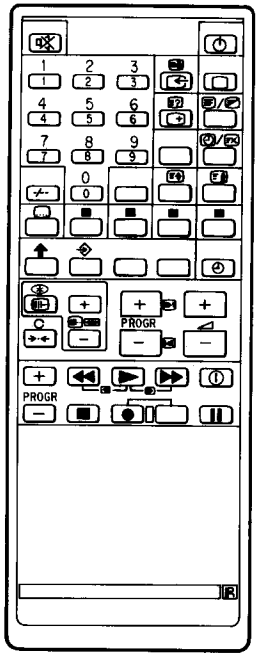
TV Set — Front



TV Set — Rear



Remote Commander



This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

TV Set

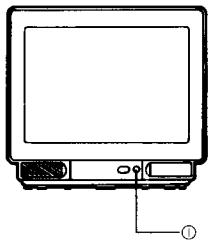
Symbol	Function
⏻	Main power switch
⏻	Standby indicator
+/−	Programme selector
+/−	Sound and picture adjustment/input selection
🎧	Headphone jack (mini-jack)
V	Video input jack
A	Audio input jack
S	S-video input jack
	21-pin connector (rear of set)
	Aerial socket (rear of set)

Remote Commander

Symbol	Function
⏻	Button for switching the TV set into standby mode
▢	Used to return to TV-mode from standby and video input modes
1-9, 0, -/--	Number buttons — in case of two digit numbers first press button -/-- and then two number buttons
PROGR +/−	Programme scanning buttons
and ↑	Preset mode on/off buttons
↑	Functions only in combination with other buttons
↑ and C	Button for clearing a programme position (in preset mode)
↑ and +/−	Buttons for manual fine tuning of a channel/presetting
🔇	Mute button
	Select button for picture adjustment item
+/−	Buttons for adjusting picture items
→•←	Button for resetting the picture adjustment items to standard
+/−	Buttons for adjusting the volume
	Button for activating the sleep timer
	On/off button for onscreen display
	Time feature (only for KV-M2141E)
◀◀, ▶▶, ▶ ■, II, ●	Video equipment operation buttons
/	Teletext buttons (only for KV-M2141E)
■ ■ ■ ■	FASTEXT Buttons
	Button for selecting the video input mode

Note:
Buttons not referred to in this index have no function.

1-2. SWITCHING ON/OFF



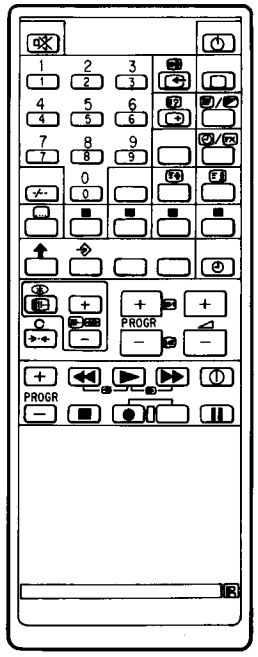
After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/230V AC, 50Hz)

How to turn the TV on

Action	Result
Press ⏻ on the TV.	The TV will turn on. **Note :** If the screen remains blank, the TV may be in the standby mode. Press ▢ on the commander to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press ▢.
B Completely	
Press ⏻ on the TV.	The TV will turn off.

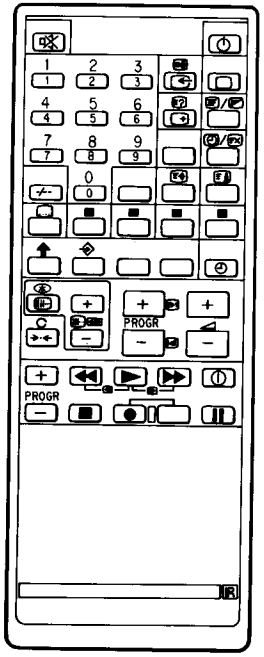


1-3. PRESETTING

Before viewing the TV programmes you need to preset TV channels. There are 60 spaces available for storing these channels.
TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on the TV.

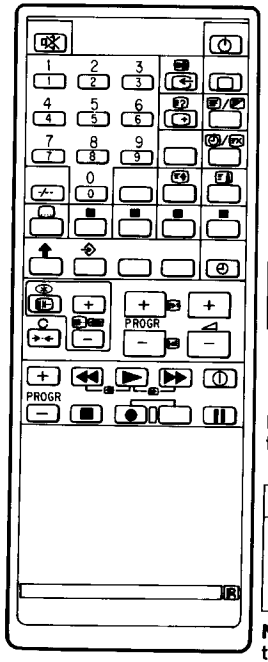
Automatic Presetting of Channels

Action	Result
1 Press both the ⬆ SHIFT button and the ◈ PRESET button simultaneously.	You are now in the preset mode. The programme number flashes.
2 Press either the number buttons or PROGR +/– to select the programme number on which you want to preset the channel. **Note :** In case of two digit numbers, first press -/--, then the two numbers.	The selected programme number will be indicated.
3 Press both the ⬆ SHIFT button and the ◈ + or – button repeatedly, until the desired channel in tuned in.	The scale with the frequency band changes.
4 Repeat steps 3 and 4 for all other channels.	
5 Press both the ⬆ SHIFT and the ◈ PRESET button simultaneously to store the channels.	All channels are now stored. The programme number stops flashing.



How to skip programme positions

Since you have 60 programme positions at your disposal, you may want to skip vacant programme positions, that means that they are skipped when you press the PROGR +/− buttons.



Action	Result
1 Press both the ⇑ SHIFT button and the ◈ PRESET button simultaneously.	You are now in the preset mode, the programme position flashes.
2 Use PROGR + or − to select the programme position you want to skip.	The selected programme position appears.
3 Press both the ⇑ SHIFT button and the button C simultaneously.	
4 Press both the ⇑ SHIFT button and the ◈ PRESET button simultaneously.	The programme position is now skipped. You are back in TV mode.

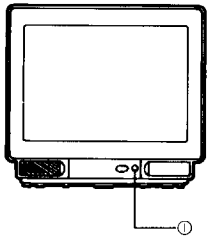
How to fine tune a channel manually

If the reception of a stored channel is not satisfactory, you can fine tune the channel manually.

Action	Result
Press both the ⇑ SHIFT button and the ⊞ + or − button simultaneously until the reception is good.	The channel is fine tuned.

Note: By pressing the respective programme number the automatic fine tuning will be restored.

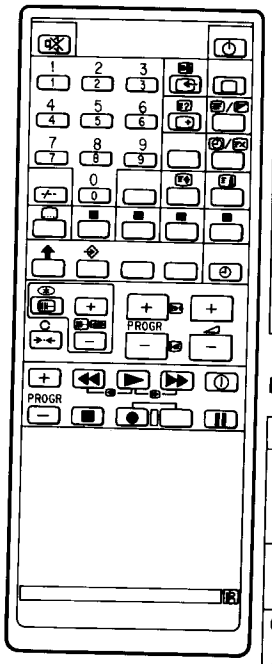
1-4. TV OPERATION



This section shows you how to use the convenient features available for operating the TV.

How to select programmes

Action	Result
Press PROGR +/− or the respective number button on the Remote Commander. In case of two digit numbers first press -/-- and then the two respective number buttons.	The selected programme is displayed.
On the set: Press the + or − button for programme selection.	



How to adjust the volume

Action	Result
Press ◅ + or −.	The ◅ symbol and the level indicator are displayed on the screen. The volume is adjusted accordingly.
Muting of the sound	
Press button 🔇.	The sound is switched off. Press the button again to restore the sound.
On the set: Press button ⊞ repeatedly in order to select the desired item, then adjust with the + or − button.	

How to adjust the picture

Action	Result
1 Press button ⊞ repeatedly, until the desired item is displayed (◑ contrast, ◕ colour intensity, ☼ brightness).	The symbol and the respective bar display are displayed.
2 Press button + or −.	The selected picture item is adjusted accordingly.
On the set: Press button ⊞ repeatedly in order to select the desired item, then adjust with the + or − button.	

To return to factory-set levels
Press the →•← button.

Other functions

On-screen display
Press the ▢ button to display the programme number on the screen and press the button a second time to make it disappear.

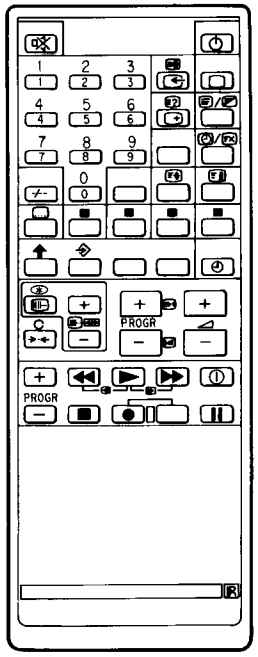
Selecting the signal of a connected device
Press the ⊡ button to receive the signal of the device (e.g. a VTR) connected at the V ⊡ A connectors (front of the set) or the 21-pin connector (rear of the set). Press the ▢ button to return to the TV mode

Time function
Press ⏲ to request the time. Press again to cancel the request (only if teletext is broadcast).

Sleep Timer
Press the ◴ button repeatedly until the required time period is displayed on the screen (30, 60, 90 minutes or 0 for cancelling the request). In this way you can select the time period after which the set switches itself automatically into standby-mode.

Additional remote commander operation
Use the buttons in the indicated area to operate most of Sony's VHS VTR equipment.

1-5. TELETEXT OPERATION (KV-M2141E only)



TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the Remote Commander.

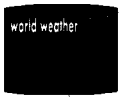
How to View the Teletext

Action	Result
1 Select the channel whith carries the teletext service you wish to view.	The channel changes on the screen.
2 Press ▤/▨.	The teletext service appears.
3 Input three digits for the page number using the number buttons. **Note :** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode : Press ▢. **To change the teletext channels** First press ▢ to return to the TV mode, then repeat steps 1 to 3.	

Note :
If the signal of the TV channels is weak, teletext errors may often occur.
The ⊡ button has no function on this set.

How to use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press ▤ (INDEX).	The index page appears.
Access the next or preceding page.	Press ▤ (PAGE +) or ▤ (PAGE −).	The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press ▤/▨ once if you are in text mode, or press ▤/▨ twice if in TV mode. To return to the normal teletext display press ▤/▨ again.	The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press ▤ (HOLD). To resume normal teletext reception, press ▤/▨ (TEXT/MIX).	The HOLD symbol ▤ appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ▤ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	 The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press ▤ (REVEAL). Press again to conceal the information.	The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	1. Request a new page.	The numbers are entered.
	2. Press ▤ (TEXT CL).	The TV programme is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ▤/▨ to view this page	The requested page is displayed.

Some of the features may not be available depending on the Teletext service.

How to use the FASTEXT Feature

FASTEXT feature allows you to access pages quickly with one key operation.
When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the four coloured buttons of your Remote Commander.

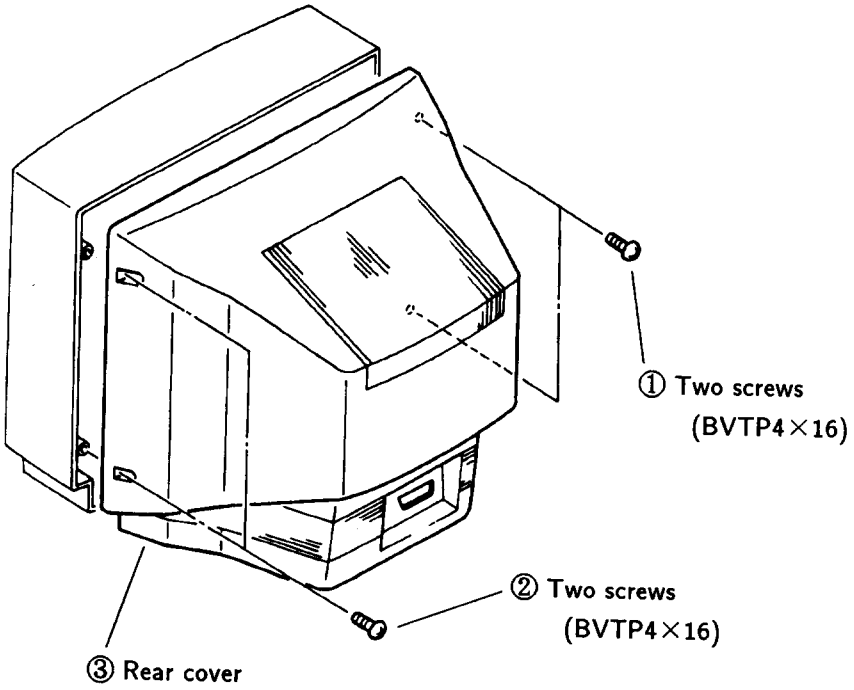
Operation

Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

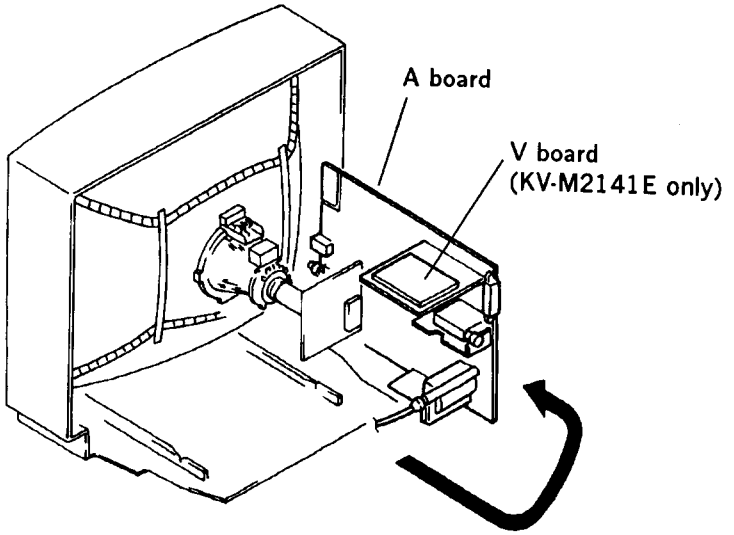
Note :
Correct FASTEXT operation depends on the necessary signals sent from the TV station.
Some TV stations may not send signals for the FASTEXT.

SECTION 2
DISASSEMBLY

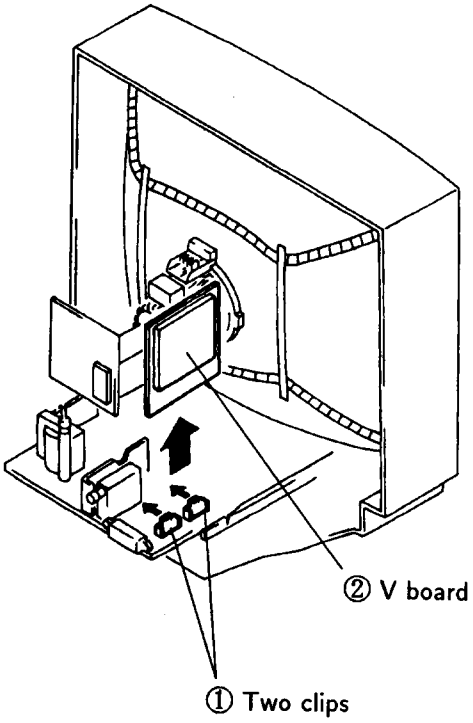
2-1. REAR COVER REMOVAL



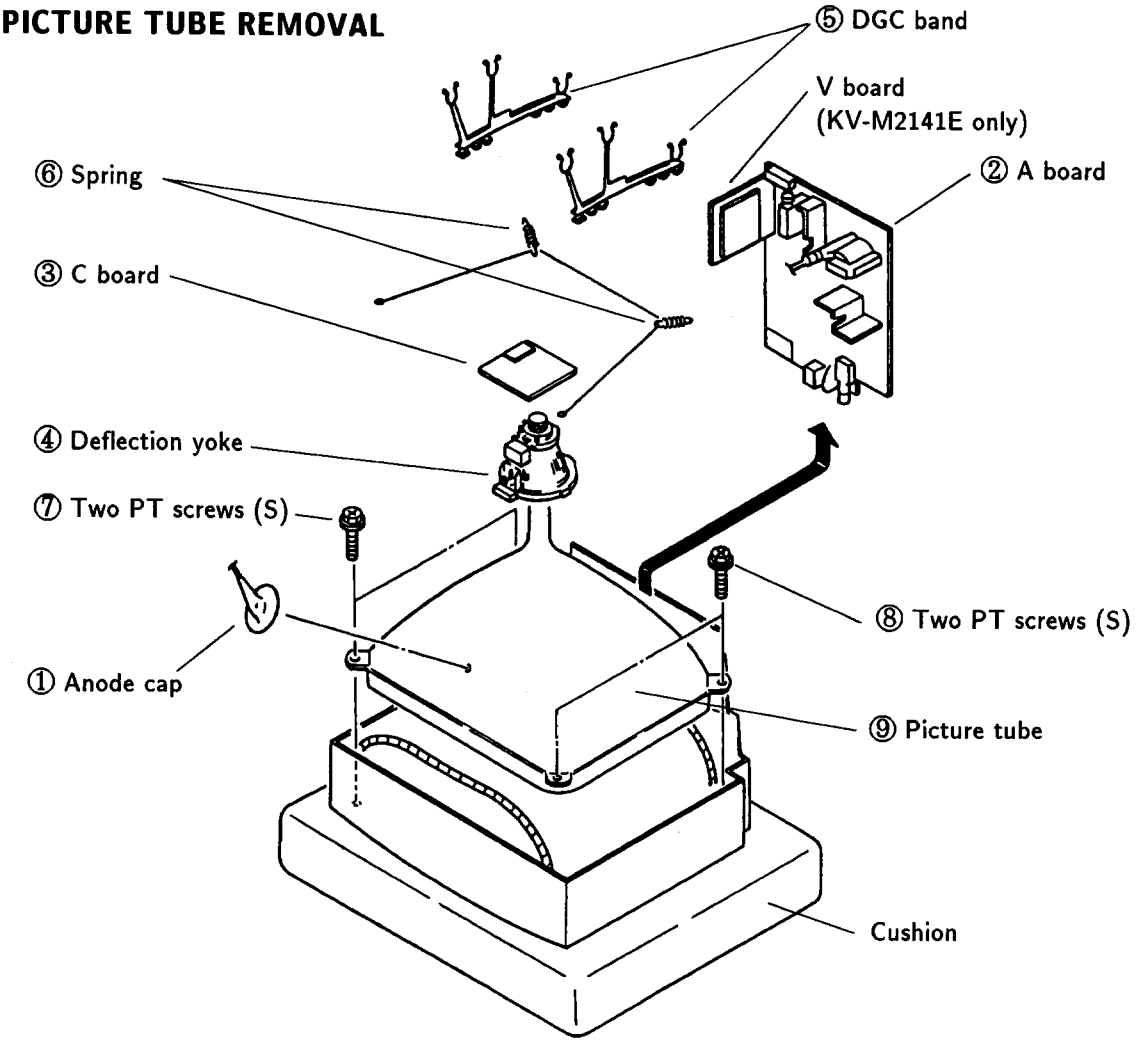
2-2. SERVICE POSITION



2-3. V BOARD REMOVAL (KV-M2141E only)

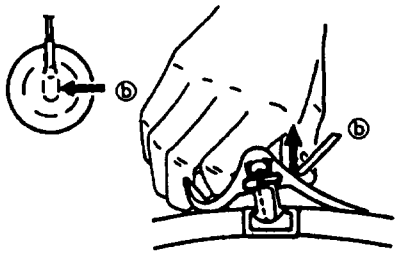


2-4. PICTURE TUBE REMOVAL

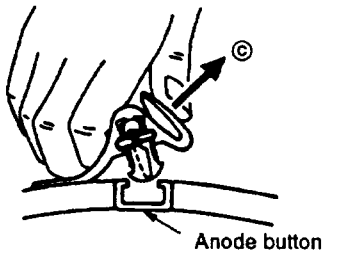


• REMOVING PROCEDURES

① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.



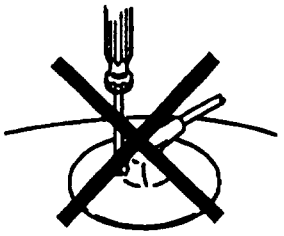
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

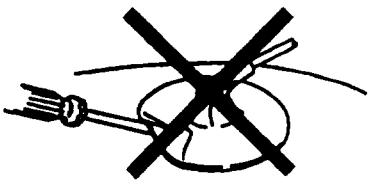
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3
SET-UP ADJUSTMENTS

● The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

● These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch below should be set as follows unless otherwise noted :

◑ CONTRASTcontrol ..... 80%(or Normal by commander)

☼ BRIGHTNESS control 50%

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

Note: Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

Preparation:

● Set the side of the unit with the PICTUE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.

● Turn the power switch for the unit ON and erase the magnetic force using a degausser..

3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.
   CONTRAST
   BRIGHTNESS } normal
2. Turn the raster signal of the pattern generator to red.
3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly. (Fig.3-1 - 3-3)
4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)
5. Switch over the raster signal to blue and green confirm the condition.
6. When the position of the deflection yoke is determined,tighten it with a deflection yoke mounting screw.
7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

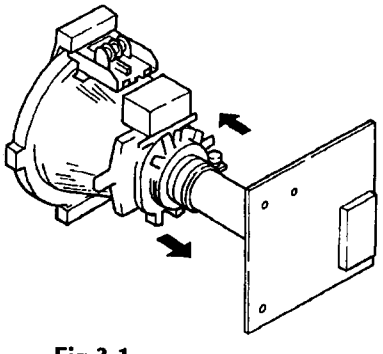


Fig.3-1

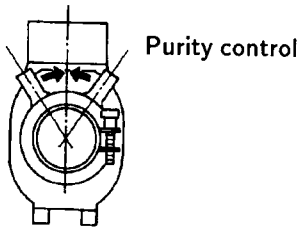


Fig.3-2

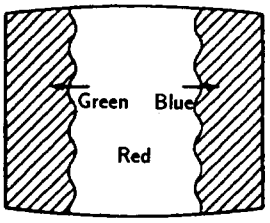


Fig.3-3

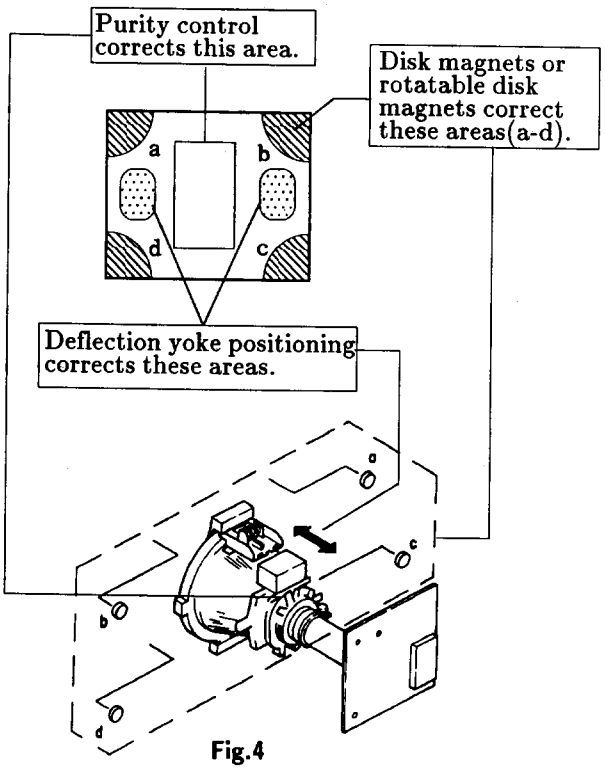


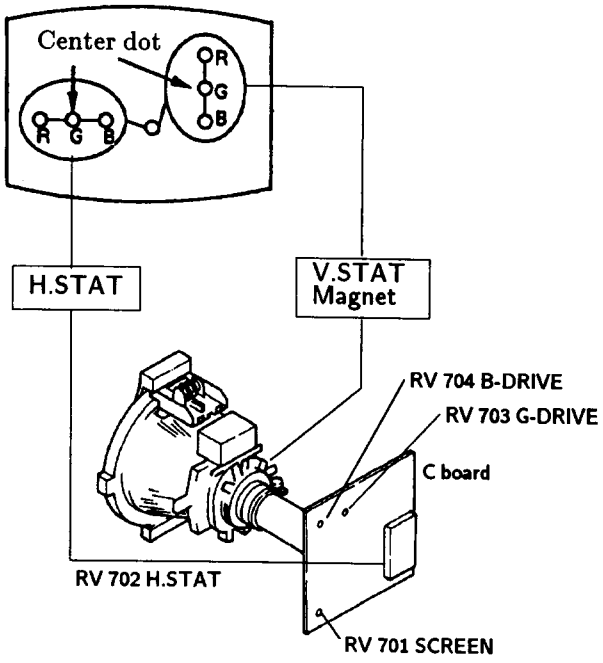
Fig.4

3-2. CONVERGENCE

Preparation:

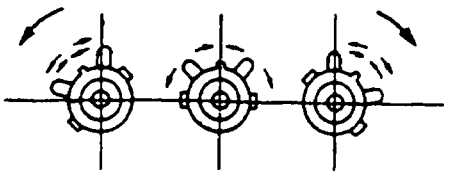
- Before starting, perform FOCUS, H.SIZE, and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

(1) Horizontal and Vertical Static Convergence

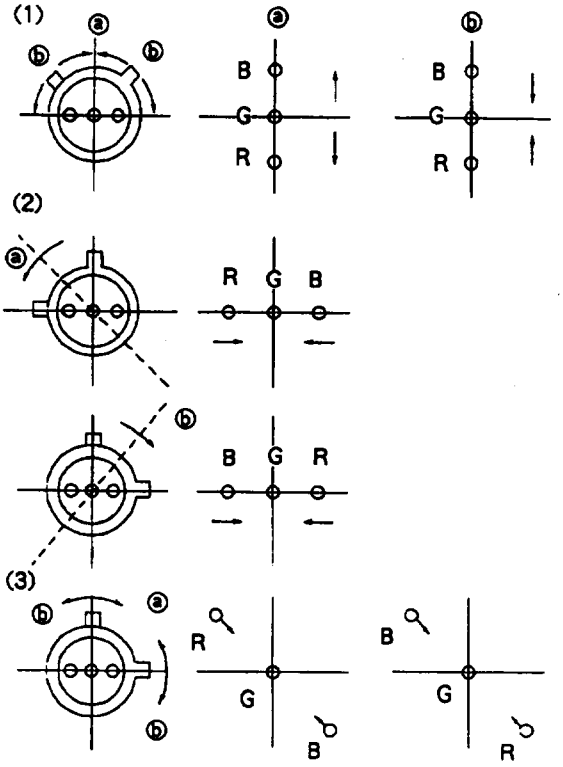


1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)

- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4.When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ, red, green and blue dots move as shown below.

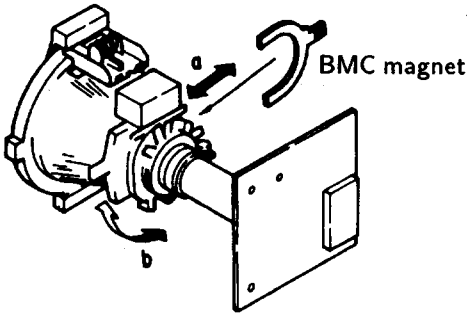


If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

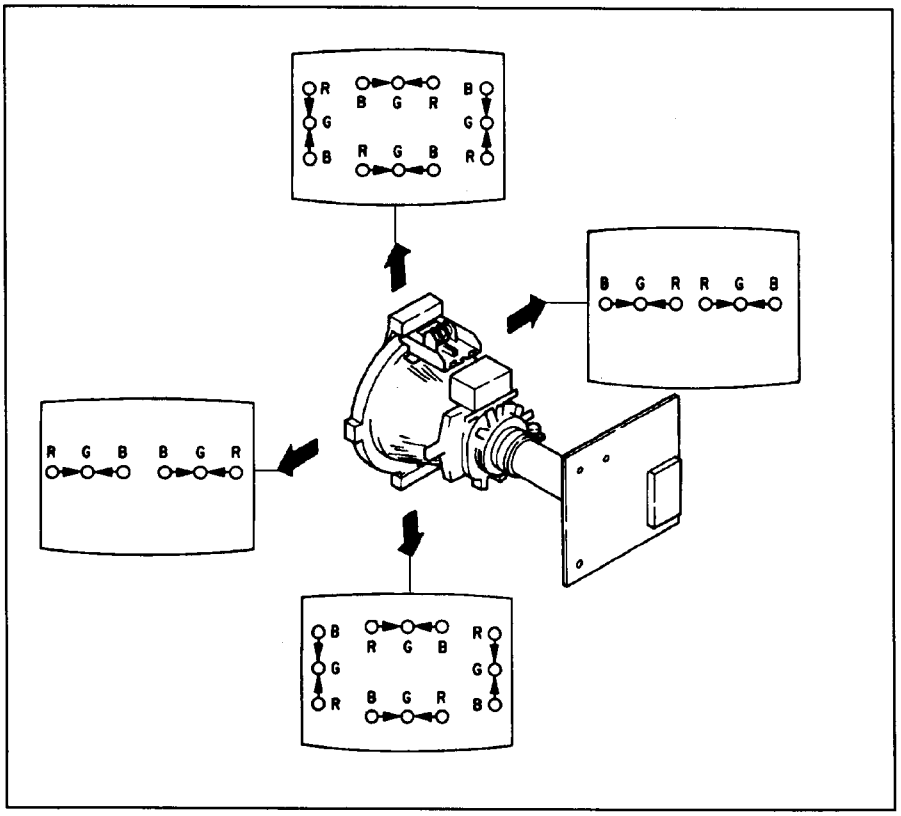


(2)Dynamic Convergence Adjustment

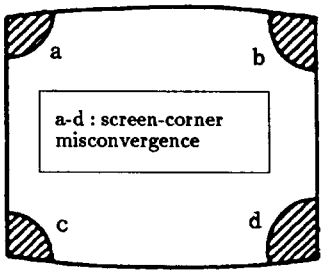
Preparation:

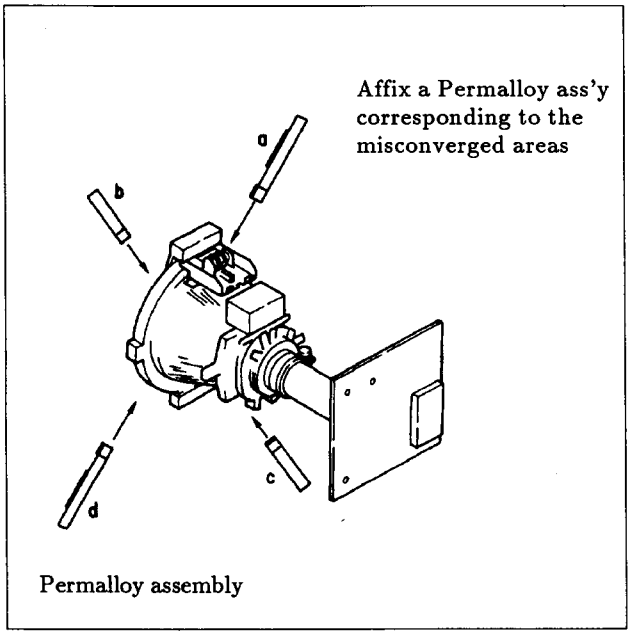
● Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.



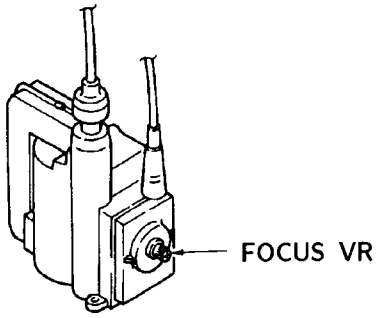
(3) Screen-corner Convergence



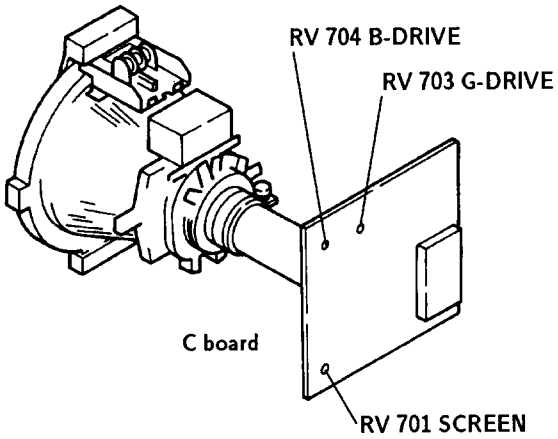


3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.



3-4. SCREEN (G 2) and WHITE BALANCE



Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power source.
4. While watching the picture, adjust the G2 control RV701 (SCREEN) immediately before fly-back line disappears.

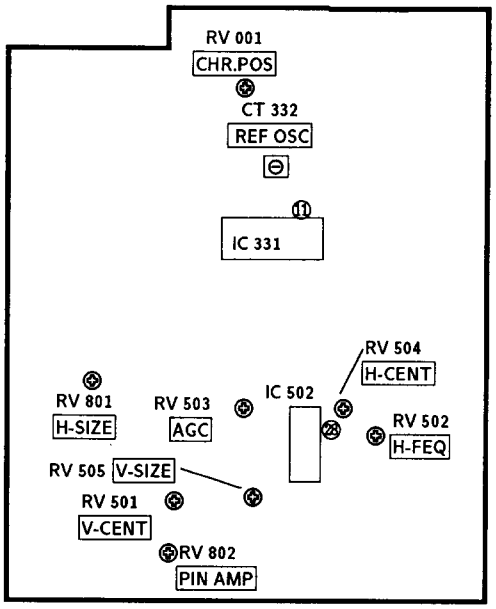
White Balance Adjustment

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BORAD ADJUSTMENTS

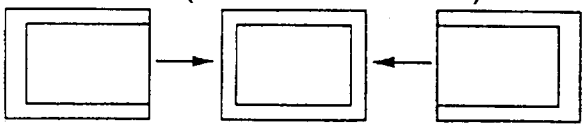


A BOARD
-Component side-

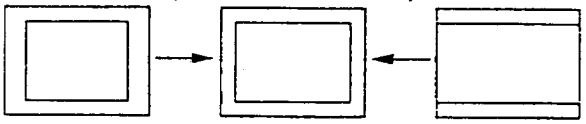
TU AGC Adjustment (RV 503)

1. Tune in air signal.
2. Adjust AGC VR (RV 503) so that snow-noise and cross-modulation just disappear from the picture.

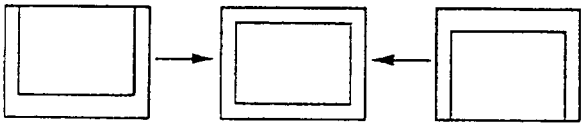
RV 504 H.CENT (HORIZONTAL CENTER)



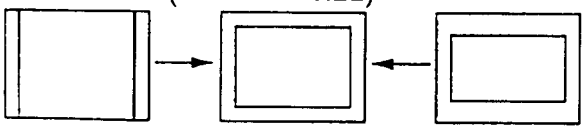
RV 801 H.SIZE (HORIZONTAL SIZE)



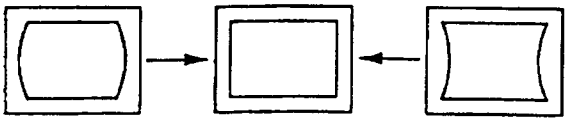
RV 501 V.CENT (VERTICAL CENTER)



RV 505 V.SIZE (VERTICAL SIZE)



RV 802 PIN AMP (PINCUSHION AMPLIFIER)



H.FREQ Adjustment (RV 502)

1. Input a PAL COLOR BAR signal, then connect an electrolytic capacitor (100 μ/16 V) between pin㉘ and GND of IC 502.
2. Adjust RV 502 (H.FREQ) to stop scrolling of the picture in the horizontal direction.
3. After adjustment, remove the electrolytic capacitor.

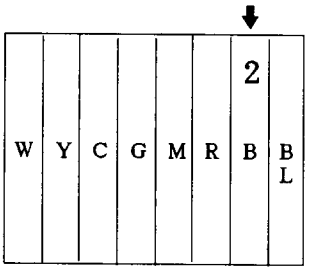
f 0 : too low　　f0: suitable
f0: 15.625±50Hz　　f 0 : too high

REF OSC 8.8 MHz Adjustment (CT 332)

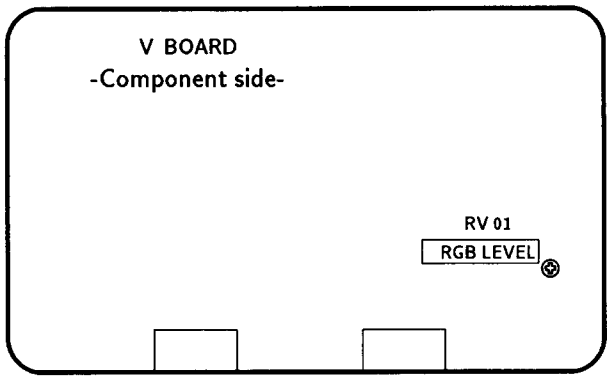
1. Input a PAL COLOR BAR pattern.
2. Short circuit between pin ⑪ of IC 331 and ground.
3. Adjust CT 332 to obtain color synchronizetion.
4. Remove the jumper wire from IC 331.

CHARACTER POSITION Adjustment (RV 001)

1. Input PAL COLOR BAR pattern.
2. Adjust RV 001 to position the charcter display at the point indicated by the arrow below.



4-2. V BOARD ADJUSTMENT
(KV-M2141E only)

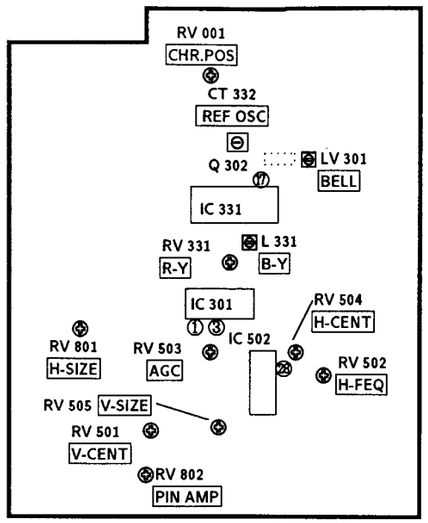


RGB LEVEL Adjustment (RV 01)

1. Set PICTURE to maximum.
2. Adjust RV01 till the RGB output becomes maximum.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BORAD ADJUSTMENTS

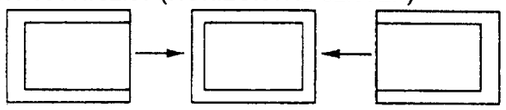


A BOARD
-Component side-

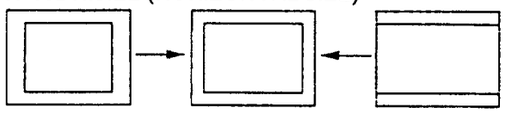
TU AGC Adjustment (RV 503)

1. Tune in air signal.
2. Adjust AGC VR (RV 503) so that snow-noise and cross-modulation just disappear from the picture.

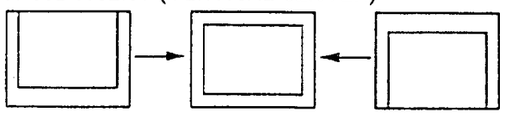
RV 504 H.CENT (HORIZONTAL CENTER)



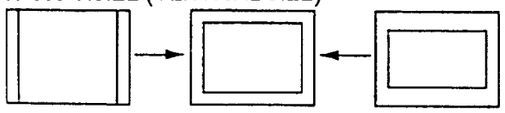
RV 801 H.SIZE (HORIZONTAL SIZE)



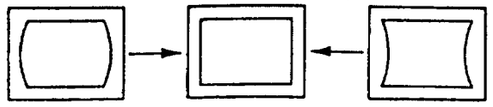
RV 501 V.CENT (VERTICAL CENTER)



RV 505 V.SIZE (VERTICAL SIZE)

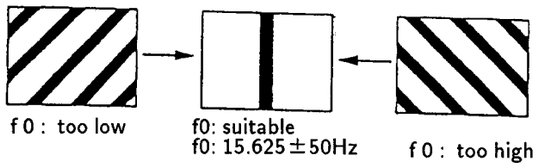


RV 802 PIN AMP (PINCUSHION AMPLIFIER)



H.FREQ Adjustment (RV 502)

1. Input a PAL COLOR BAR signal, then connect an electrolytic capacitor (100 μ/16 V) between pin㉘ and GND of IC 502.
2. Adjust RV 502 (H.FREQ) to stop scrolling of the picture in the horizontal direction.
3. After adjustment, remove the electrolytic capacitor.

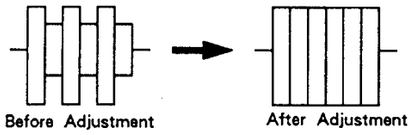


REF OSC 8.8 MHz Adjustment (CT 332)

1. Input a PAL COLOR BAR pattern.
2. Short circuit between pin⑰ of IC 331 and ground.
3. Adjust CT 332 to obtain color synchronizetion.
4. Remove the jumper wire from IC 331.

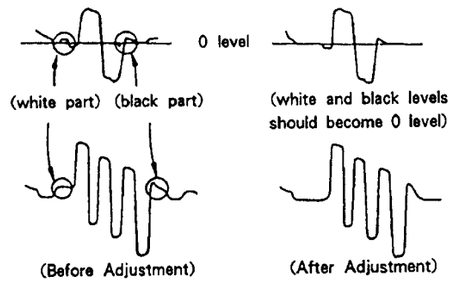
BELL FILTER Adjustment (LV 301)

1. Input a SECAM COLOR BAR pattern.
2. Connect an oscilloscope to rhe Q 302 emitter.
3. Adhust LV 301 so that waveform becomes flat.



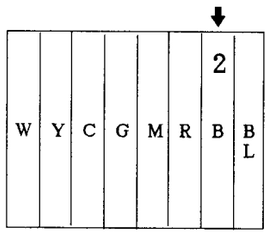
SECAM DISCRI Adjustment (RV 331 R-Y L 331 B-Y)

1. Input a SECAM COLOR BAR pattern.
2. Connect an oscilloscope to pin ① of IC 301.
3. Adjust RV 331(R-Y) so that white and black parts of the waveform of pin ① becomes 0 level.
4. Connect an oscilloscope to pin ③ of IC 301.
5. Adjust L 331(B-Y) so that white and black parts of the waveform of pin ③ becomes 0 level.

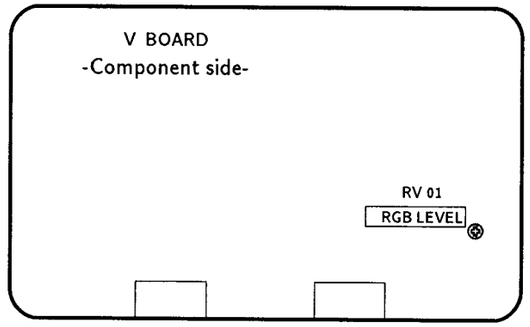


CHARACTER POSITION Adjustment (RV 001)

1. Input PAL COLOR BAR pattern.
2. Adjust RV 001 to position the charcter display at the point indicated by the arrow below.



4-2. V BOARD ADJUSTMENT (KV-M2151D only)

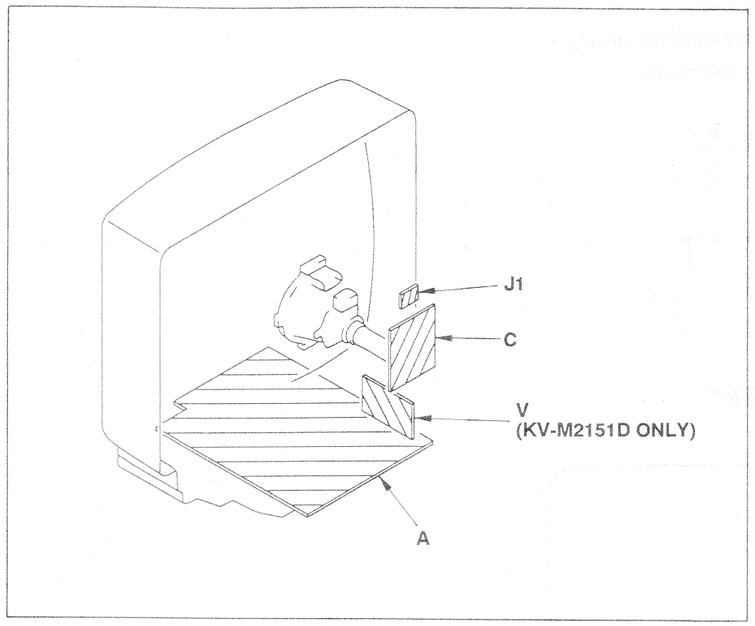


RGB LEVEL Adjustment (RV 01)

1. Set PICTURE to maximum.
2. Adjust RV01 till the RGB output becomes maximum.

SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION



5-2. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ=1000Ω, MΩ=1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power ¼ W

- : nonflammable resistor.
- △ : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊥ : earth-ground.
- ⏚ : earth-chassis.
- # : no mounted.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

- Readings are taken with a color-bar signal input.
  no mark : with PAL color-bar signal received.
  ( ) : with SECAM color-bar signal received.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

DIODE

D002	E-10
D004	C-9
D007	B-8
D008	D-10
D009	B-8
D011	E-8
D020	B-8
D110	C-5
D301	C-6
D302	A-2
D303	B-6
D305	A-2
D306	B-6
D313	A-3
D321	C-5
D324	A-7
D333	D-7
D334	B-6
D402	A-1
D403	B-1
D404	B-1
D405	A-1
D406	C-1
D411	A-1
D417	D-1
D418	A-4
D426	C-1
D427	C-1
D450	B-5
D501	D-3
D503	E-4
D504	G-2
D519	C-8
D601	F-7
D602	F-6
D603	F-5
D604	E-4
D605	E-6
D606	D-5
D607	G-5
D608	H-5
D609	G-5
D610	G-5
D611	F-4
D801	G-3
D802	H-4
D803	G-4
D805	G-1
D806	F-1
D807	F-3
D808	E-3
D810	E-1
D811	E-1
D820	F-4

DIODE

D1301	B-10
D1302	B-10
D1303	B-10
D1304	A-10
D1305	A-10
D1306	B-10
D1307	B-10

IC

IC001	C-9
IC002	D-9
IC003	D-10
IC004	E-9
IC005	B-8
IC102	B-5
IC201	F-8
IC301	D-5
IC302	B-7
IC331	C-7
IC501	D-2
IC502	C-4
IC601	G-5
IC801	F-3
IC802	E-4

TRANSISTOR

Q001	D-8
Q003	C-9
Q004	D-10
Q005	B-8
Q006	C-8
Q007	B-4
Q015	D-3
Q016	D-10
Q017	E-9
Q019	D-10
Q020	D-8
Q104	C-1
Q106	A-2
Q107	A-2
Q112	A-7
Q114	B-5
Q115	A-6
Q123	A-2
Q141	C-3
Q302	C-7
Q303	C-7
Q304	B-6

TRANSISTOR

Q305	B-6
Q307	B-6
Q310	A-3
Q311	A-3
Q401	B-1
Q457	D-1
Q504	C-3
Q505	B-3
Q601	G-5
Q801	F-4
Q802	H-3
Q803	F-3
Q1301	B-9
Q1302	B-10
Q1303	B-10
Q1304	A-10
Q1305	A-10
Q1306	B-10

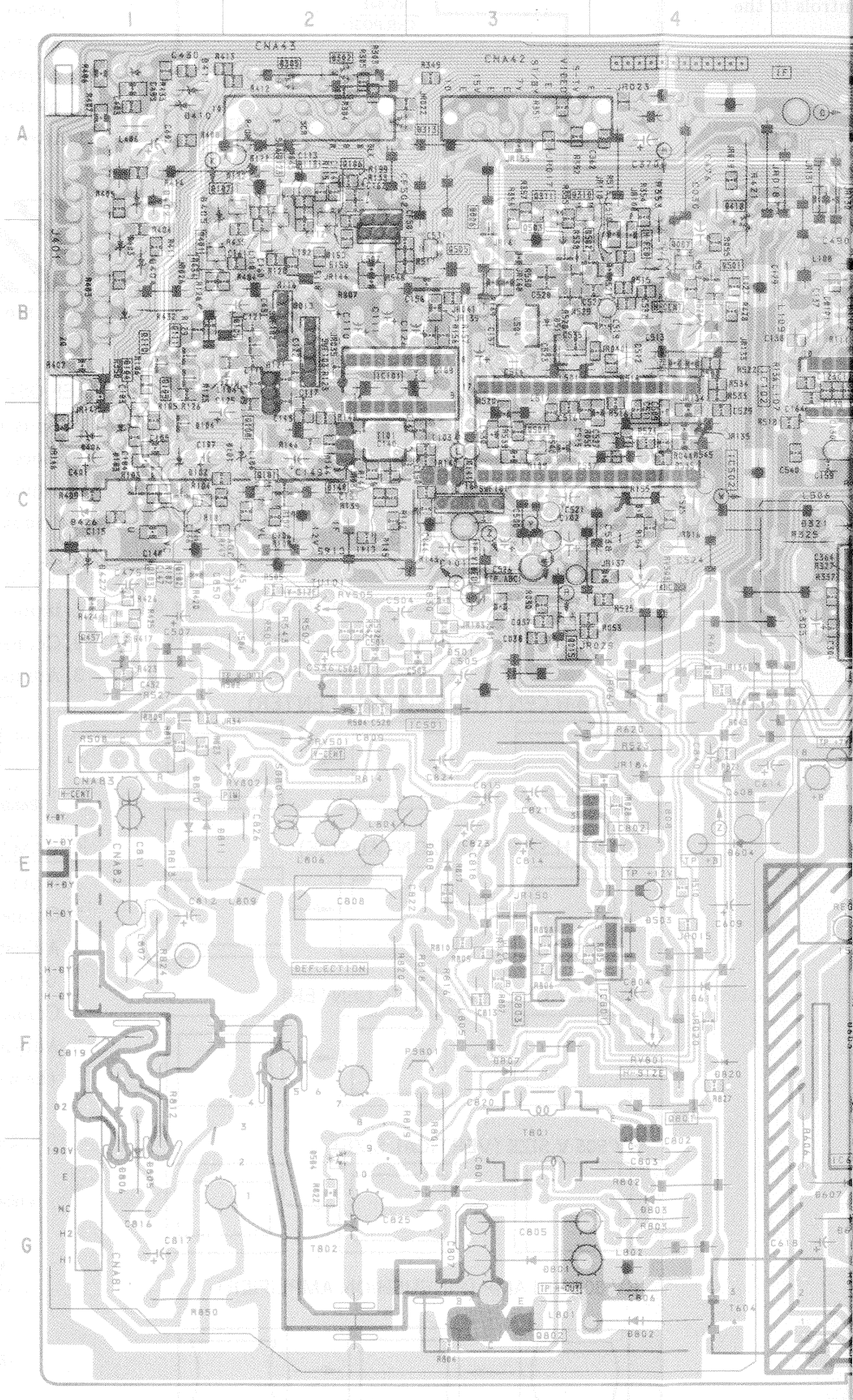
VARIABLE RESISTOR

RV001	D-9
RV331	D-6
RV501	D-2
RV502	B-4
RV503	C-4
RV504	B-4
RV505	D-2
RV801	F-4

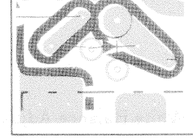
TRIMMER

CT332	C-7

— A Board —



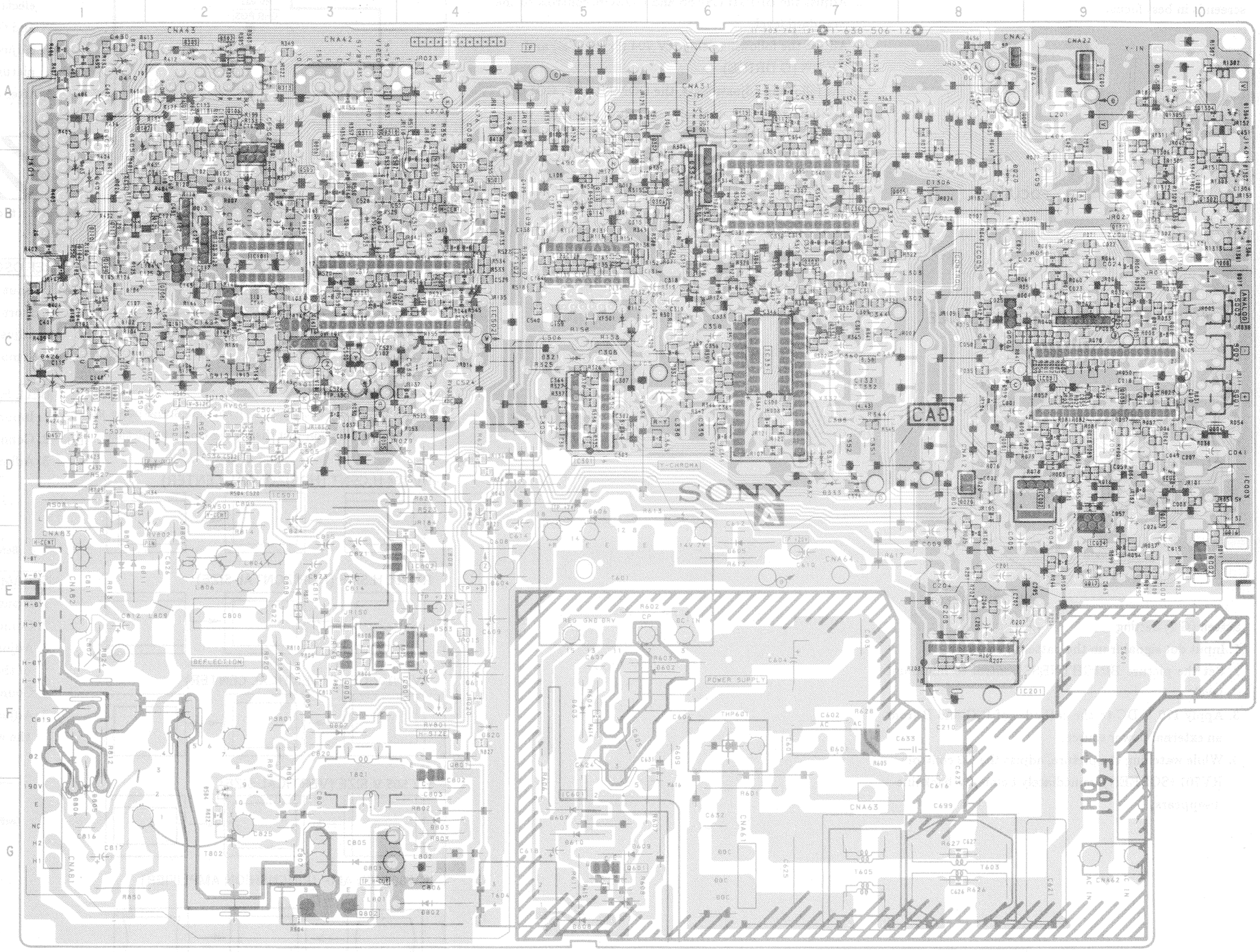
A [SYSTEM CONTROL, A/V OUT, H/V OUT, MEMORY, CHROMA]



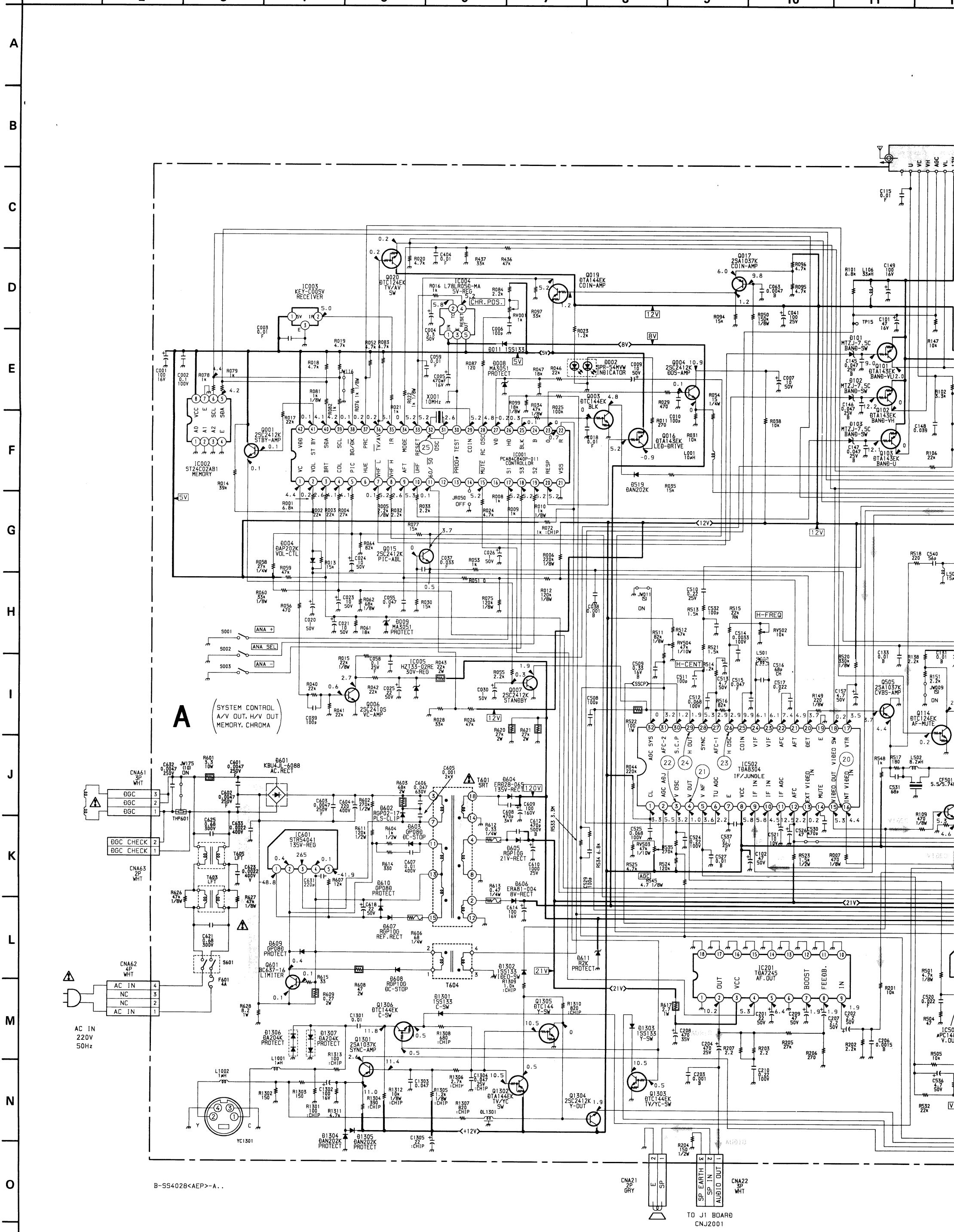
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

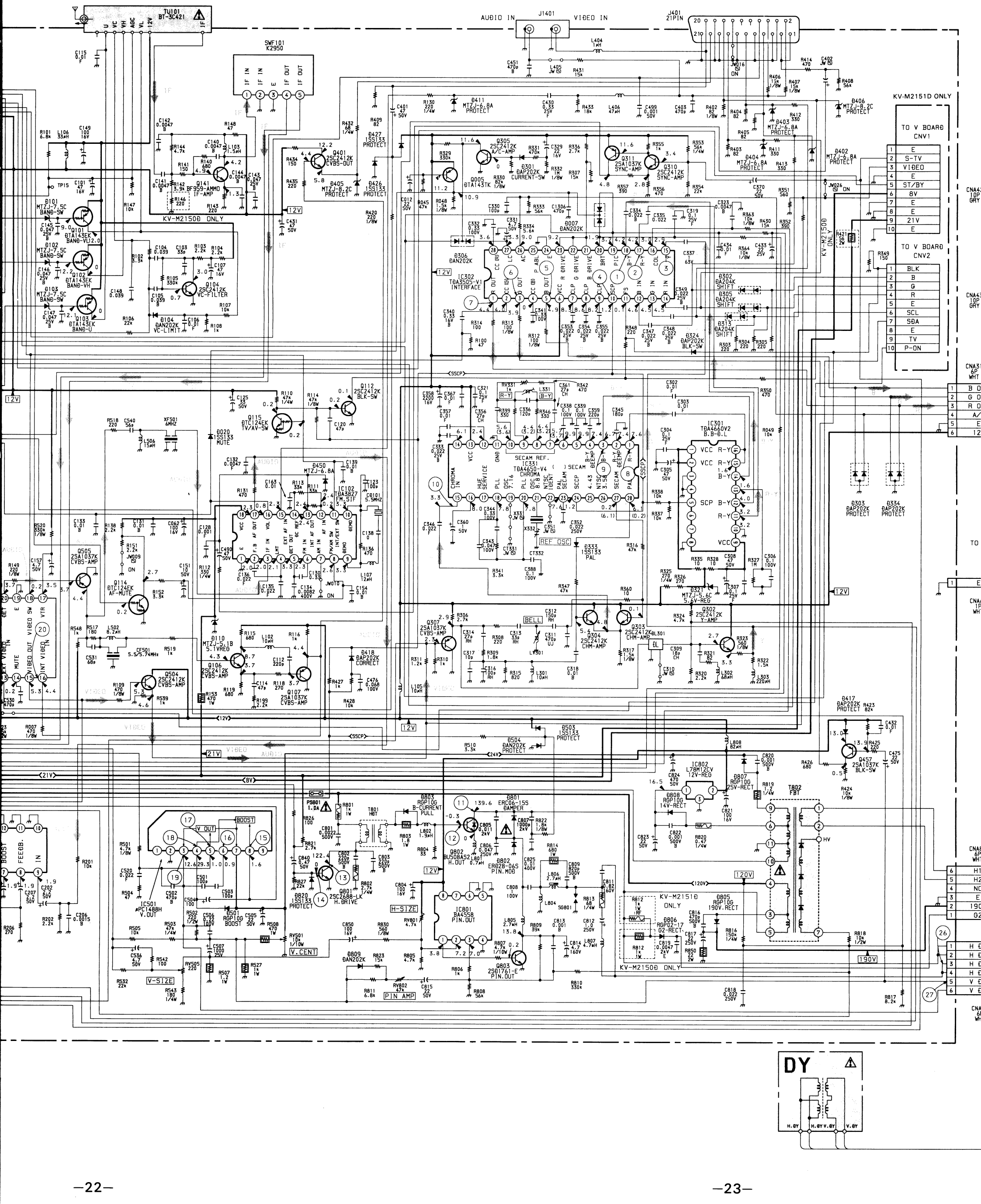
– A Board –

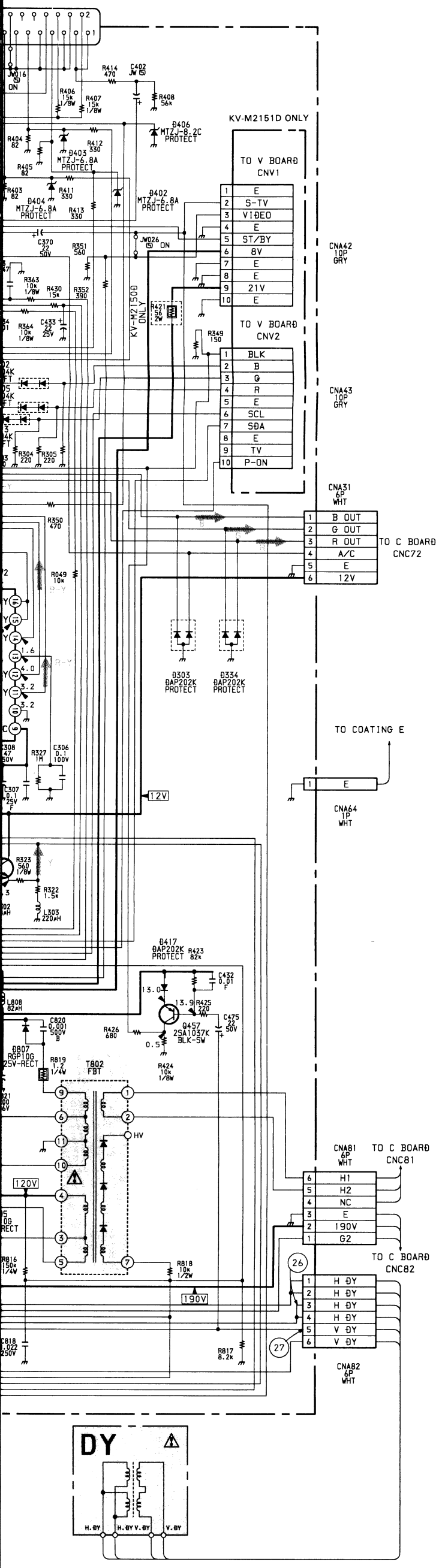
DIODE		DIODE		TRANSISTOR	
D002	E-10	D1301	B-10	Q305	D-6
D004	C-9	D1302	B-10	Q307	D-6
D007	B-8	D1303	B-10	Q310	A-3
D008	D-10	D1304	A-10	Q311	A-3
D009	B-8	D1305	A-10	Q401	B-1
D011	E-8	D1306	B-10	Q457	D-1
D020	B-8	D1307	B-10	Q504	C-3
D110	C-5			Q505	B-3
D301	C-6			Q601	G-5
D302	A-2	IC		Q801	F-4
D303	B-6			Q802	H-3
D305	A-2	IC001	C-9	Q803	F-3
D306	D-6	IC002	D-9	Q1301	B-9
D313	A-3	IC003	D-10	Q1302	B-10
D321	C-5	IC004	E-9	Q1303	B-10
D324	A-7	IC005	B-8	Q1304	A-10
D333	D-7	IC102	B-5	Q1305	A-10
D334	B-6	IC201	F-8	Q1306	B-10
D402	A-1	IC301	D-5		
D403	B-1	IC302	B-7		
D404	B-1	IC331	C-7	VARIABLE RESISTOR	
D405	A-1	IC501	D-2		
D406	C-1	IC502	C-4	RV001	D-9
D411	A-1	IC601	G-5	RV331	D-6
D417	D-1	IC801	F-3	RV501	D-2
D418	A-4	IC802	E-4	RV502	B-4
D426	C-1			RV503	C-4
D427	C-1			RV504	B-4
D450	B-5			RV505	D-2
D501	D-3	TRANSISTOR		RV001	F-4
D503	E-4				
D504	G-2	Q001	D-8	TRIMMER	
D519	C-8	Q003	C-9		
D601	F-7	Q004	D-10	CT332	C-7
D602	F-6	Q005	B-8		
D603	F-5	Q006	C-8		
D604	E-4	Q007	D-4		
D605	E-6	Q015	D-3		
D606	D-5	Q016	D-10		
D607	G-5	Q017	E-9		
D608	H-5	Q019	D-10		
D609	G-5	Q020	D-8		
D610	G-5	Q104	C-1		
D611	F-4	Q106	A-2		
D801	G-3	Q107	A-2		
D802	H-4	Q112	A-7		
D803	G-4	Q114	B-5		
D805	G-1	Q115	A-6		
D806	F-1	Q123	A-2		
D807	F-3	Q141	C-3		
D808	E-3	Q302	C-7		
D810	E-1	Q303	C-7		
D811	E-1	Q304	B-6		
D820	F-4				



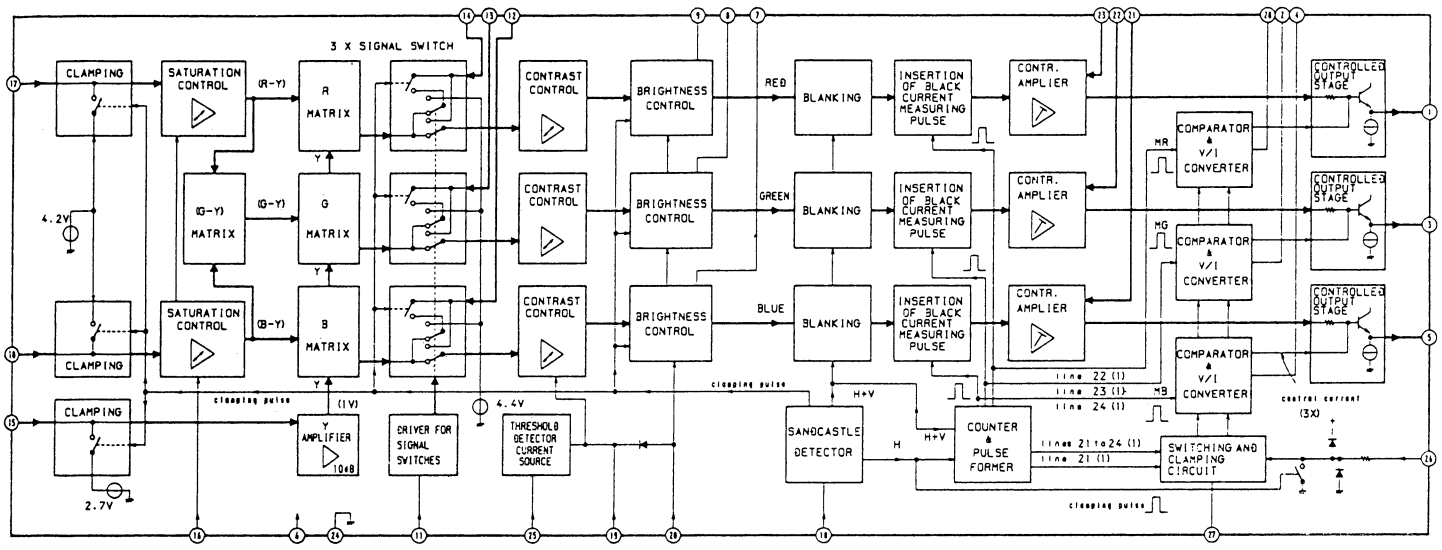
(1) Schematic Diagram of A Board



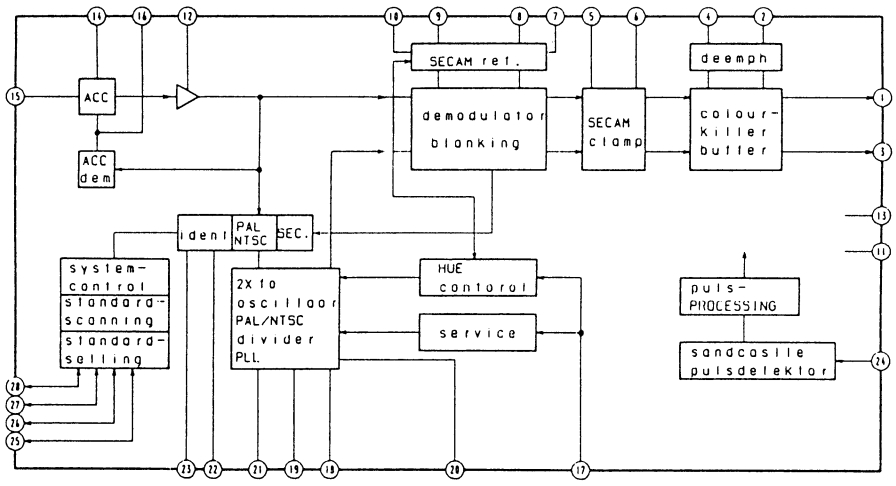

TU101 BT-3C421
SWF101 K2950
AUDIO IN J1401 VIDEO IN
J401 21PIN
KV-M2151D ONLY
KV-M2150D ONLY
TO V BOARD CNV1
TO V BOARD CNV2
IC302 T0A3505-V1 INTERFACE
IC331 T0A4650-V4 CHROMA
IC301 T0A4660V2 B.B-D.L
IC102 T0A3827 FM.SIF
IC801 BA4558 PIN.OUT
IC501 μPC1488H V.OUT
REF OSC
SECAM REF.
V-SIZE
V.CENT
PIN AMP
H-SIZE
DY



A Board IC302 TDA3505-V1



A Board IC331 TDA4650-V4



A BOARD WAVEFORMS

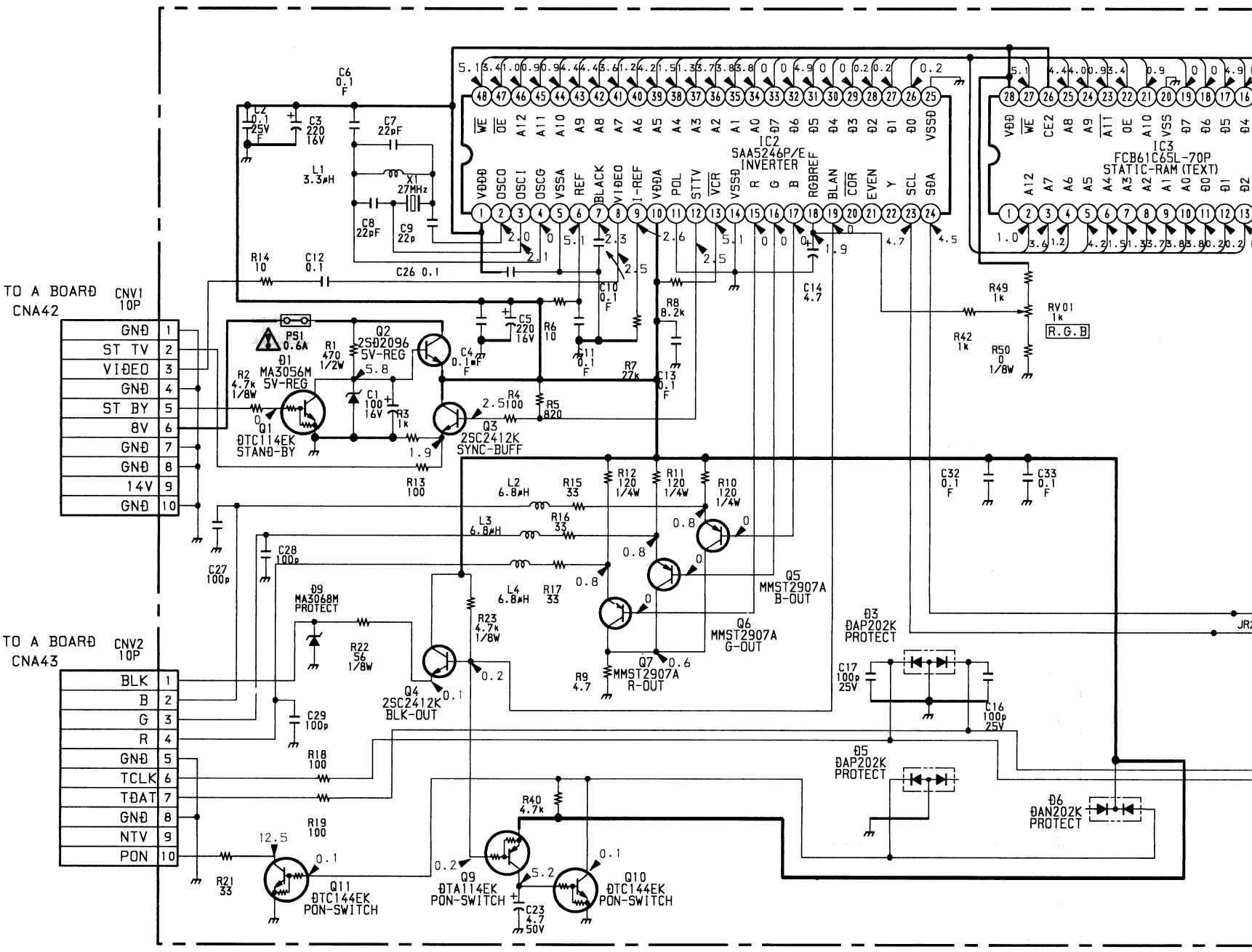
① 1.5Vp-p (H)	② 1.2Vp-p (H)	③ 0.38Vp-p (H)
④ 9.0Vp-p (H)	⑤ 2.4 Vp-p (H)	⑥ 2.5 Vp-p(H)
⑦ 2.5Vp-p (H)	⑧ 0.6Vp-p (H)	⑨ 0.6 Vp-p (H)
⑩ 0.24Vp-p (H)	⑪ 750Vp-p (H)	⑫ 12 Vp-p (H)
⑬ 320Vp-p (H)	⑭ 1.5Vp-p (H)	⑮ 1.7Vp-p (V)
⑯ 2.5Vp-p (V)	⑰ 1.5Vp-p (V)	⑱ 2.2Vp-p (V)

B-554030<ET.>-A<WAVELIST>-1

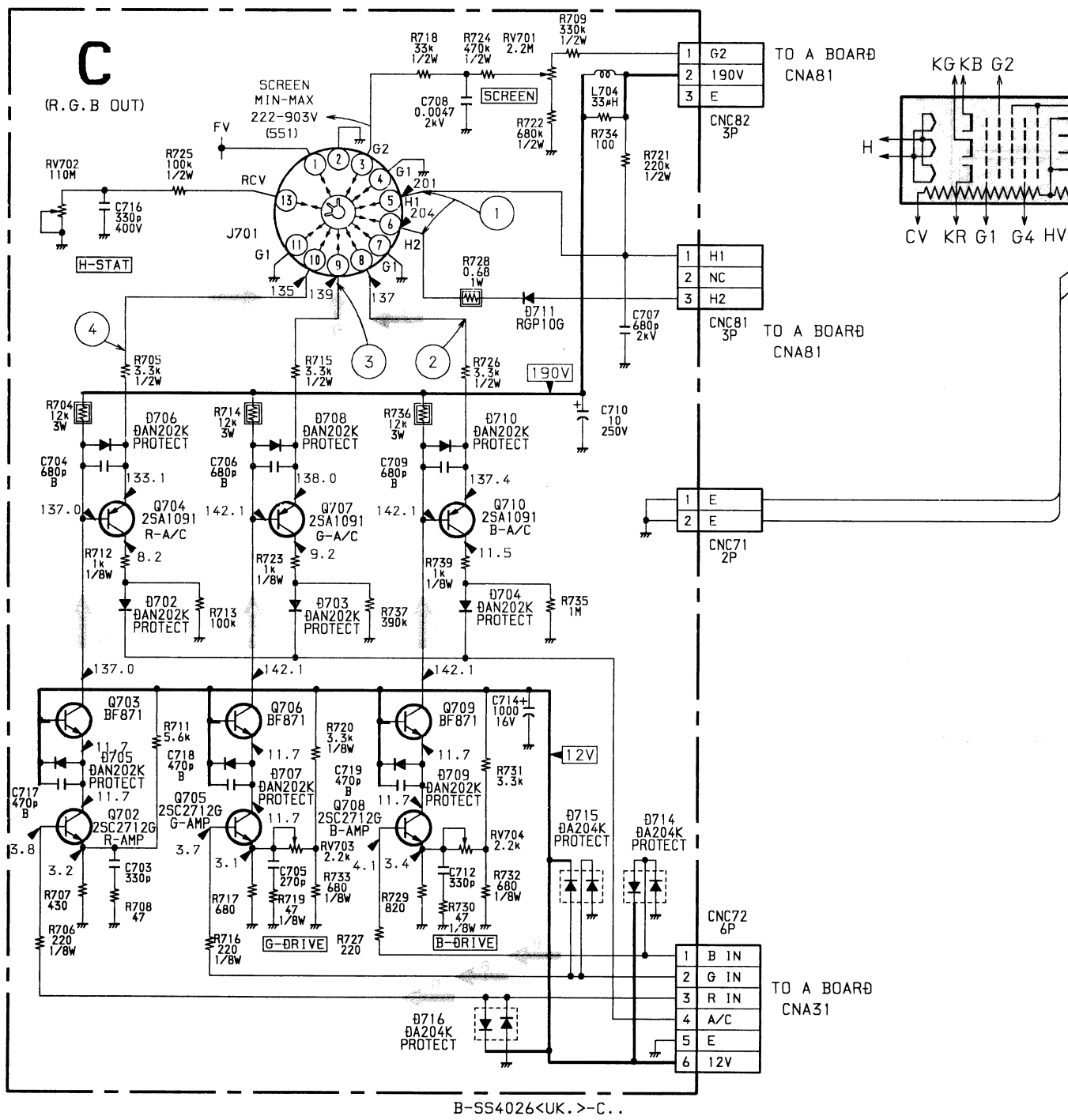
⑲ 50Vp-p (V)	⑳ 1.7Vp-p (H)	㉑ 5.2 Vp-p (V)
㉒ 2.0Vp-p (V)	㉓ 2.2 Vp-p (H)	㉔ 4.0 Vp-p(H)
㉕ 1.7Vp-p (10MHz)	㉖ 200Vp-p(H)	㉗ 4.2 Vp-p (V)

B-554030<ET.>-A<WAVELIST>-2

(KV-M2151D ONLY)

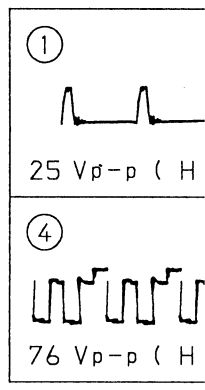


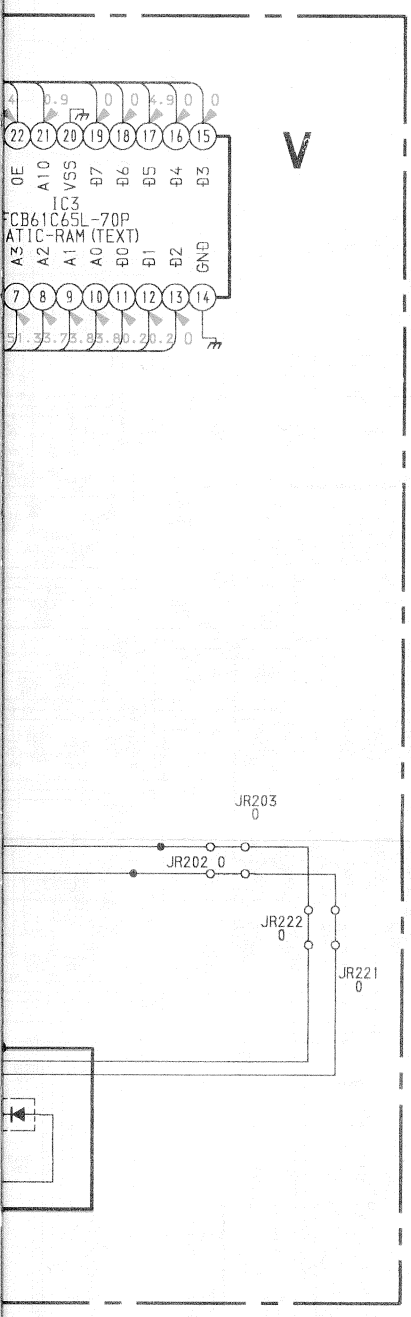
B-SS402



B-SS4026<UK.>-C..

C BOARD WAVE



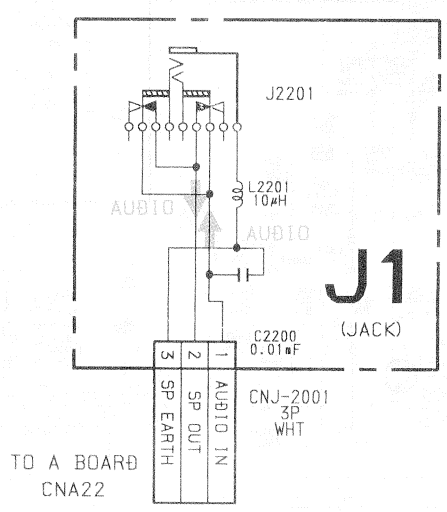


B-SS4026<UK.>-V.

C BOARD WAVEFORMS

① 25 Vp-p (H)	② 68 Vp-p (H)	③ 70 Vp-p (H)
④ 76 Vp-p (H)		

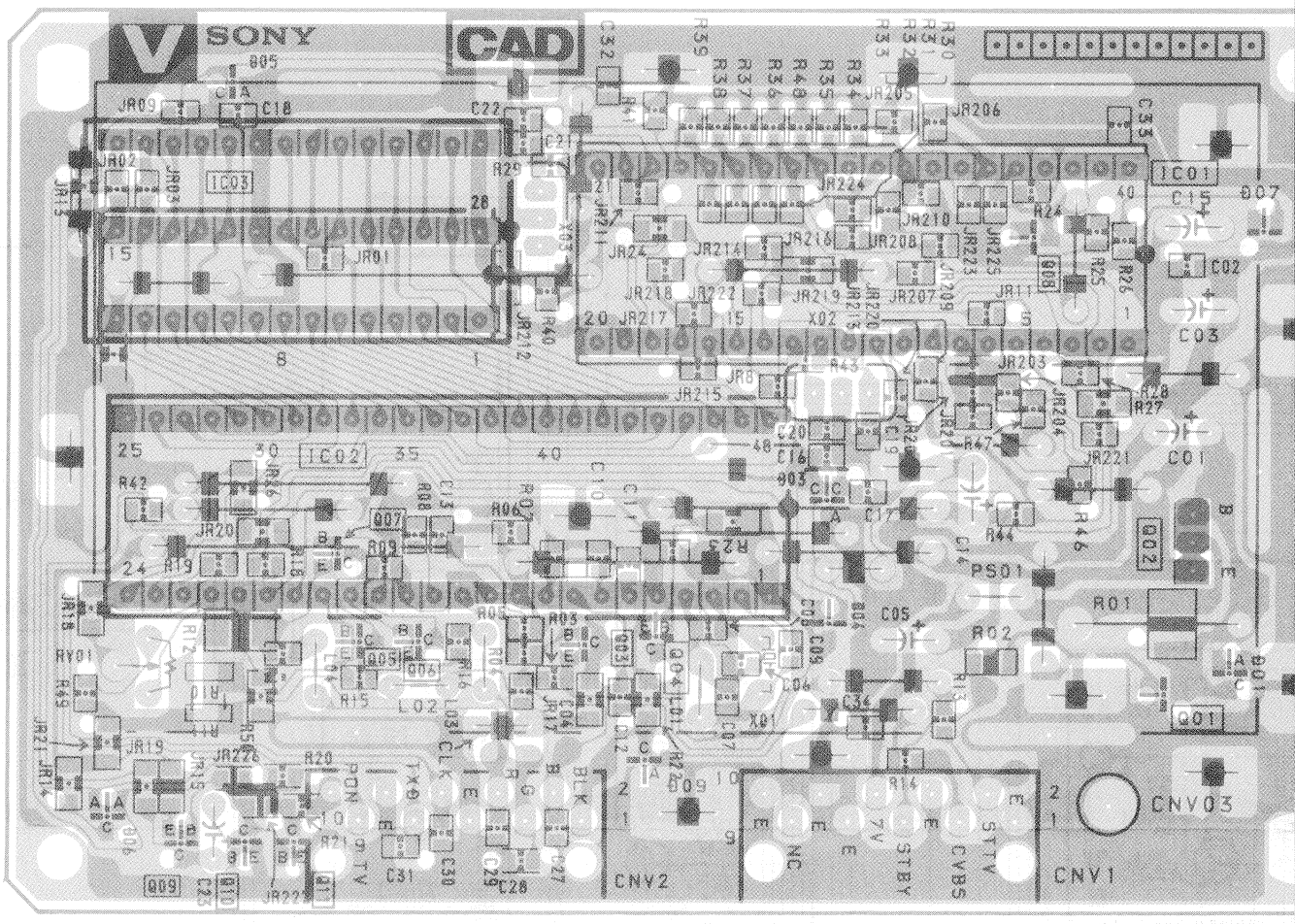
B-SS4030<ET.>-C<WAVELIST>



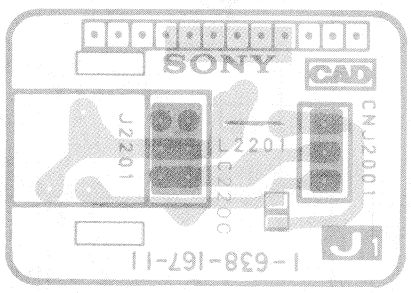
B-SS4026<UK.>-J1.

V [TELE TEXT] C [R, G, B OUT] J1 [JACK]

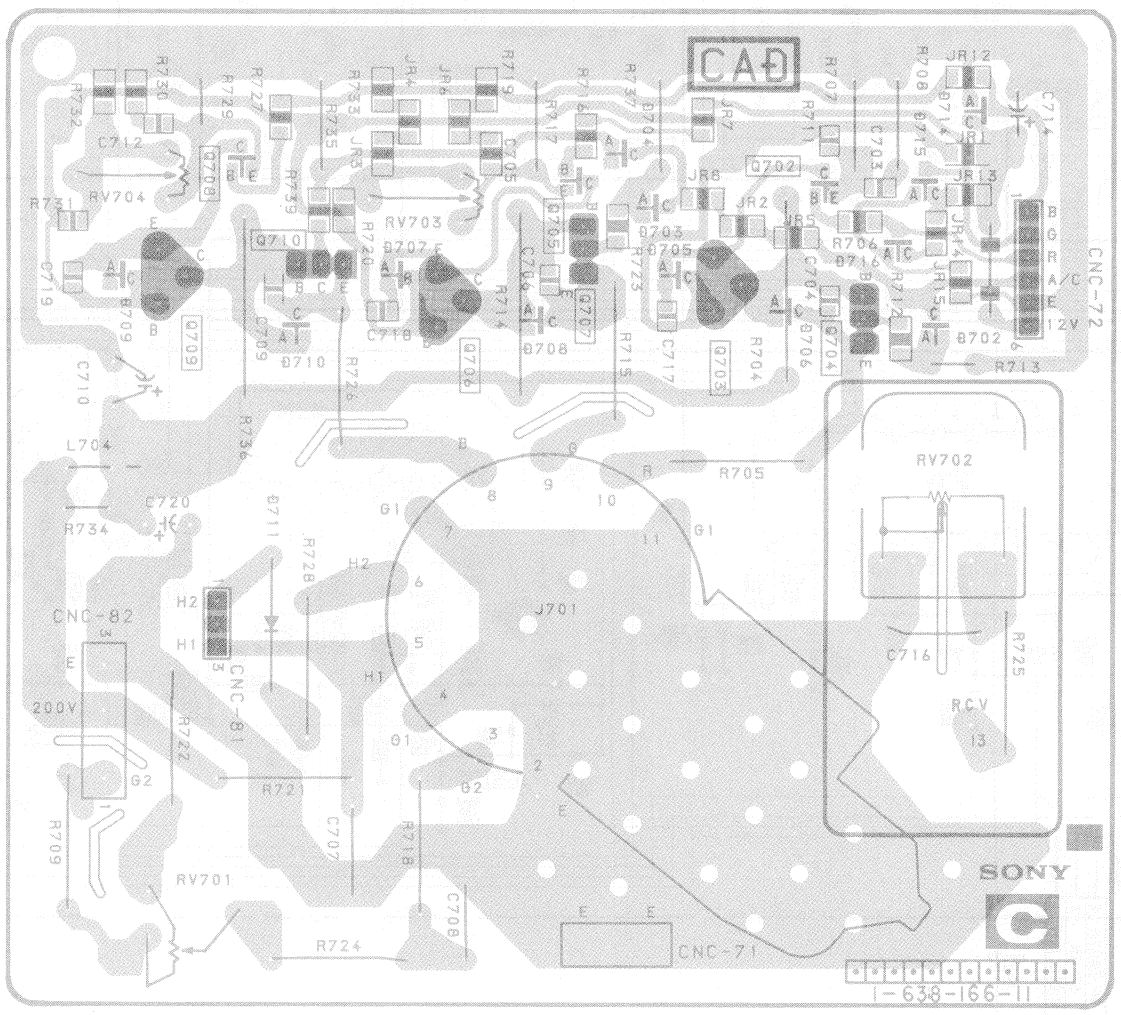
— V Board — (KV-M2151D ONLY)



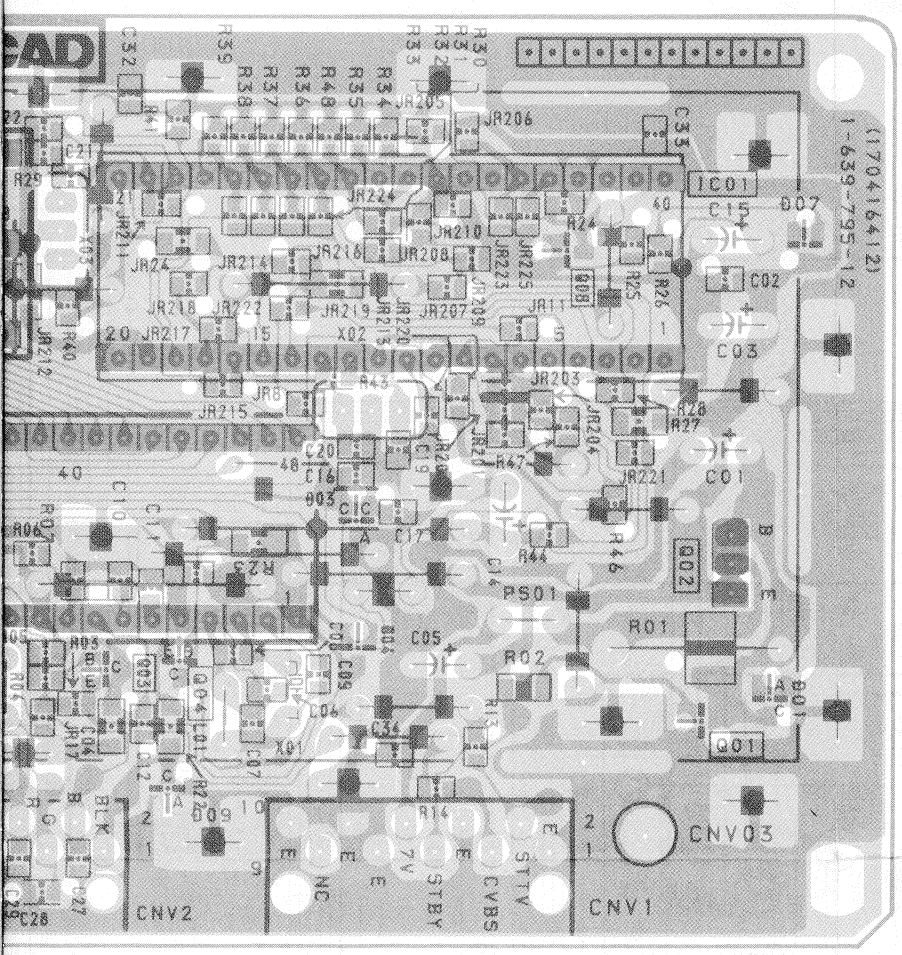
— J1 Board —

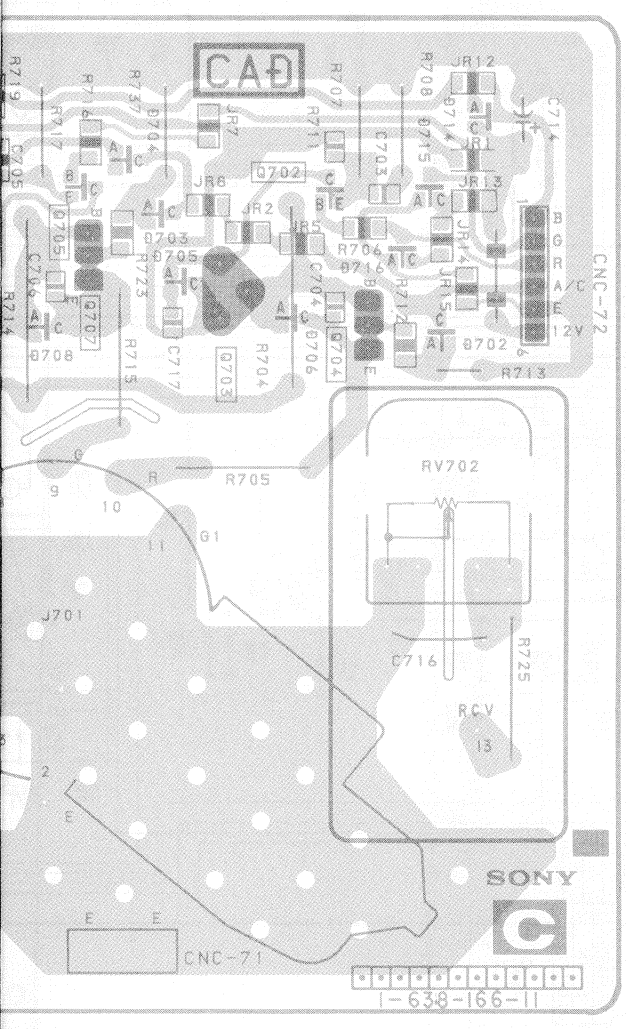


— C Board —



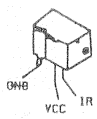
J1 [JACK]



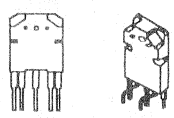


5-3. SEMICONDUCTORS

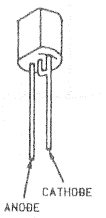
KEY-C00SV-F



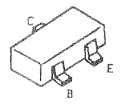
STR54041



μPC574J



ÐTA114EK
ÐTA143EK
ÐTA143TK
ÐTA144EK
ÐTC114EK
ÐTC124EK
ÐTC144EK
MMST2907A
2SA1037K
2SA1162-G
2SB1295-UL6
2SC1623-L5L6
2SC2412K
2SC2712G
2SC2712-YG



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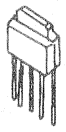

TÐA3505-V1
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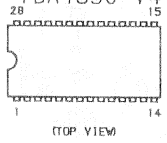
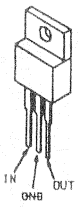
TÐA4650-V4



BC637-16

M5F78M12L



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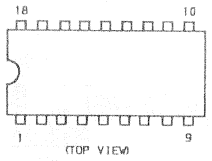
TÐA7245



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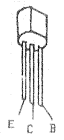

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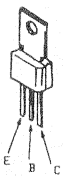

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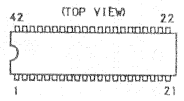

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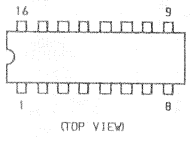

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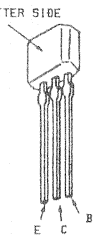

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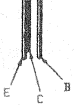

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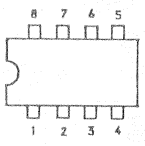

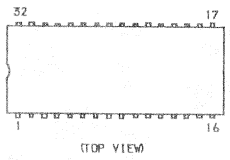

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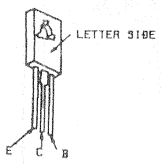

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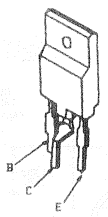

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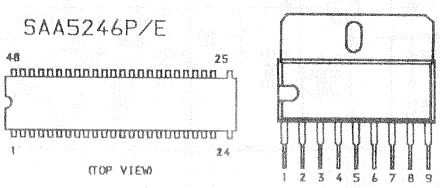

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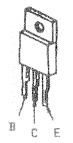

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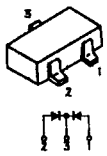
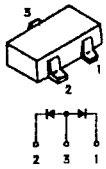
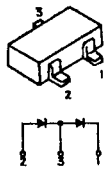


DAP202K



DA204K
1SS226



ERA83-006
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RD5.6ES-B2
RD6.8ES-B2
RD7.5ES-B2
RD8.2ES-B2
1SS119
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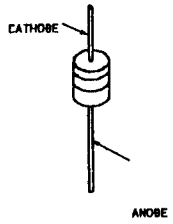
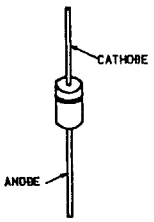


ERC06-15S



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ERD28-08S
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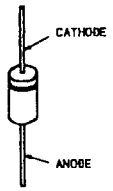
RGP10G
RU-3AM
R2K



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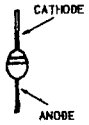
U05G



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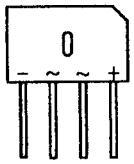
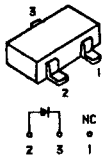


MA3051
MA3056M
MA3068M
RD5.1M-B2
RD5.6M-B2
RD6.8M-B2



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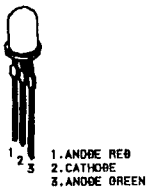

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